

ART. XVI.—*Descriptions of some Land Planarians*
from Queensland.

(Plate XI.)

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The specimens described in the present communication were collected by Professor W. Baldwin Spencer, M.A., on his recent expedition to Southern Queensland in September and October 1891, and kindly placed in my hands in a living condition for purposes of description. There were six species represented in the collection, and these belonged to no less than three genera, viz., *Geoplana* (four species); *Rhynchodemus* (one species); and *Bipalium* (one species, probably introduced). Only two of the species are new to science, but one of these, *Geoplana regina*, is a remarkably handsome worm. The other species are already known from the adjoining colony of New South Wales. As might be expected, the species altogether show a much closer relationship to those of New South Wales than to those of Victoria. Professor Spencer informs me, however, that the Planarian fauna was not nearly so rich in the localities visited by him as it is in many parts of Victoria.

1. *Geoplana cœrulea*, Moseley.*

This well-known species, the first ever described from Australia, was met with in abundance, some of the specimens measuring as much as 110 mm. in length by 2·5 mm. in greatest breadth when crawling. The shape of the body varied considerably in the living animal, the dorsal surface being sometimes flattened, sometimes simply convex, and sometimes strongly ridged, as in the closely allied Victorian

* "Notes on the Structure of several Forms of Land Planarians, &c." *Quarterly Journal of Microscopical Science*, Vol. XVII, N.S., p. 285.

species *G. dendyi*, Spencer. The peripharyngeal aperture (in spirit) is in about the middle of the ventral surface, sometimes a little anterior, and the genital aperture is situate at about one-third of the distance from it to the posterior extremity. The eyes are arranged in a densely crowded irregular patch on each side of the head and continued in single series all round the horse-shoe-shaped anterior margin. The ground colour of the dorsal surface (in life) ranged from pale indigo-blue to dark grey, blue-brown or almost black. The mid-dorsal yellow stripe was sometimes so pale as to be almost white, and frequently there was visible on each side an ill-defined dorso-lateral band of a lighter tint of the ground colour, dividing each half of the dark dorsal surface into a broader (more dorsal) and a narrower (more ventral) band. The anterior extremity was pinkish, although sometimes the pink colour was scarcely recognisable. The ventral surface was bright blue, lighter in the middle line than elsewhere.

Localities.—Gympie (Mary River); Burnett River; Cooran.

2. *Geoplana variegata*, Fletcher and Hamilton.*

(Plate XI, Fig. 2.)

This very handsome species was obtained by Professor Spencer in large numbers and would seem to be the commonest species in the district visited by him. The body is long and narrow, even when lying still and coiled into a knot; tapering a good deal more gradually in front than behind. The shape of the dorsal surface varies from more or less flattened to strongly ridged, according to the position of the animal; it may be said to be characteristically ridged, as shown in the figure. The worm reaches a very large size. The largest specimen, after preservation in spirit, measured 115 mm. in length by 6 mm. in greatest breadth; I could not get it to crawl about actively so as to measure it when crawling. A smaller specimen, however, in which also a portion of the posterior extremity was broken off, measured about 163 mm. in length by 5 mm. in breadth when crawling. The peripharyngeal aperture (in spirit) is in about the middle of the ventral surface and the genital aperture about

* "Notes on Australian Land Planarians, with Descriptions of some New Species, Part I." *Proceedings of the Linnean Society of New South Wales*, Vol. II (Series 2), 1887, p. 364.

half-way between the peripharyngeal and the posterior extremity. The eyes are not very numerous, in two patches one on each side of the anterior end of the body and continued in close-set single series all round the anterior margin. The predominant tint of the dorsal surface varies from green or violet to rich reddish-brown or brownish-red. Running down the mid-dorsal line is a very narrow stripe of bright yellow. On each side of this is a slightly broader stripe of dark brown, whose outer edge is ill-defined. Then a still slightly broader stripe of bright yellow with a few very minute flecks of brown. Then a very broad, dark band of the predominant tint, most commonly dark greenish-brown or grey, almost black, gradually fading outwards into a narrow band of pale greyish or greenish-blue. Then a narrow stripe of a very dark brownish colour only slightly wider than the narrow blue band, and, lastly, another narrow blue band but wider than the first and extending to the margin of the ventral surface. The anterior extremity is pinkish. In the mid-ventral line there is a rather narrow, almost white band gradually merging on each side into a pale purplish-grey band which, in turn, gradually merges into the pale greenish-blue band at the margin of the dorsal surface.

All things considered, I have little hesitation in identifying this species with Messrs. Fletcher and Hamilton's *G. variegata*, especially as the latter appears to vary somewhat in tint. As this very handsome species has not before been figured of the natural colours, I have thought it desirable to do so now.

Localities.—Gympie (Mary River); Burnett River; Cooran.

3. *Geoplana minor*, n. sp.

Body at rest much flattened; when crawling very long and narrow, nearly cylindrical, tapering very gradually in front and more suddenly behind, and measuring only about 18 mm. in length by 1 mm. in greatest breadth. The peripharyngeal aperture (in spirit) is situate in about the middle of the ventral surface and the genital aperture about half way between it and the posterior end. The eyes are not very numerous, arranged in a single row at the sides of the head-end and all round the anterior margin, and also very sparingly down the sides of the body to the posterior

extremity. The colour of the living animal is milk-white all over, sometimes with a yellowish tinge.

This very small Planarian was met with in abundance both at Cooran and on the Burnett River. I at first thought it might be the young of *Geoplana alba* but microscopical examination showed it to be sexually mature and, moreover, no large specimens were met with. It may possibly be a dwarf variety of *G. alba*, but careful anatomical investigation will be required to decide this point. Meanwhile it appears advisable to give it a distinct name.

Localities.—Burnett River ; Cooran.

4. *Geoplana regina*, n. sp.

(Plate XI, Figs. 1, 1a, 1b.)

The body is remarkably broad and, when at rest, very much flattened on both surfaces. When the animal is crawling, however, the dorsal surface is strongly arched and the body tapers very gradually in front and behind. When crawling the animal measures about 66 mm. in length and 5.5 mm. in greatest breadth. In spirit the body is flat or even concave on the ventral surface, but pretty strongly arched on the dorsal, and the posterior half of the body is, on an average, a good deal broader than the anterior half. The peripharyngeal aperture is decidedly behind the middle of the ventral surface but in front of the junction of the middle and posterior thirds. The genital aperture is about half way between the peripharyngeal aperture and the posterior extremity. The eyes are arranged as usual in the genus.

The ground colour of the dorsal surface is rich gamboge-yellow, almost orange, interrupted by eleven longitudinal stripes of varying shades of brown, as follows (Fig. 1a):—In the mid-dorsal line there is a very broad stripe of very dark, rich brown ; on either side of this median stripe is a band of ground colour of only about half the width ; then comes a still narrower and somewhat faint stripe of light brown ; then another band of ground colour similar to the last ; then another brown stripe a good deal darker than the last ; then another band of ground colour as before ; then another still darker stripe of brown ; then another band of ground colour as before ; then another brown stripe, this time light-coloured ; then another band of ground colour as

before and then, on the extreme lateral margin, a moderately dark brown stripe. Hence we have, on each side of the broad median stripe, five bands of ground colour alternating with five narrow brown stripes of varying intensity, the middle one of the five being the darkest and broadest. The inner margins of the narrow brown stripes are less well defined than the outer and tend to shade off into the ground colour. The horse-shoe-shaped anterior extremity is dark brown. The ventral surface has also a characteristic pattern (Fig. 1*b*). The ground colour is white. In the middle line there is a moderately broad band of ground colour with no markings, slightly broader around the external apertures (which lie in it) than elsewhere. On either side of this median band, and extending almost to the margin of the ventral surface, is a very broad band of ground colour spotted all over with small flecks of light brown. The brown flecks are pretty evenly distributed except at the outer margin of the spotted band, where they are closer and run together into an irregular, very narrow stripe. Outside this stripe a narrow band of white, with no flecks, extends to the outer margin of the outermost of the narrow brown dorsal stripes.

Only two specimens of this very handsome species were obtained.

Locality.—Gympie (Mary River).

5. *Rhynchodemus obscurus*, Fletcher and Hamilton.*

I have some little hesitation in making this identification. The characters of the species are not at all striking and there were only a few specimens in the collection. When the animal is crawling the body is very long and narrow, strongly convex on the dorsal surface and flattened on the ventral. It scarcely tapers at all to the anterior extremity but tapers gradually posteriorly. One specimen measured 60 mm. in length by 1.7 mm. in greatest breadth when crawling. In spirit the peripharyngeal aperture is situated in about the middle of the ventral surface and the genital aperture about half way between it and the posterior end. The eyes are arranged as usual in the genus, viz., a single pair placed a short way behind the anterior extremity. The

* "Notes on Australian Land Planarians, &c." Proc. Linn. Soc., N.S.W., Vol. II (Series 2), p. 372.

dorsal surface in life was of a uniformly black colour, the anterior extremity rather lighter and the ventral surface brownish-grey.

Localities.—Gympie (Mary River) ; Cooran.

6. *Bipalium kewense*, Moseley.*

Two specimens of this remarkable Planarian were obtained. When alive the body was very long and narrow, especially when crawling. The head was, as usual, crescentic or "cheese-cutter-shaped." After preservation in spirit the peripharyngeal aperture was situate in about the middle of the ventral surface; the genital aperture I could not distinguish. The ground colour on the dorsal surface of the living animal was olive-brown, interrupted by five dark stripes arranged as follows:—In the middle line a narrow black stripe; on each side of this two dark olive-grey stripes, the outer one being narrower and less well-defined than the inner. The outer and inner paired stripes of each side unite together anteriorly just behind the head. All the stripes stop at the neck and the cheese-cutter-shaped head has a dark purplish-grey colour in front of a lighter transverse band which marks the junction of head and body. The ventral surface was pale grey in the middle line with a darker grey stripe on each side and then, outside this, a pale olive-brown band extending to the outer dark dorsal stripe.

The specimens agreed closely with the figures given by Bell† except for the presence of the outer dark stripes on the dorsal surface, which are not shown in Bell's figures but are described by Moseley in his original paper. I take the present opportunity of stating that I do not at all agree with Professor Bell's remarks as to the uselessness of the head as a generic character. The head, of course, like all other parts of the body of a Planarian, is capable of great changes of shape in the living animal. No one would deny this for a moment, but, at the same time, the head is always there and always has a certain *normal* shape to which it constantly returns and which is eminently characteristic. Nothing could be more striking than the difference between *Geoplana*

* "Description of a New Species of Land-Planarian from the Hothouses at Kew Gardens." *Annals and Magazine of Natural History*, S. 5, Vol. I, p. 237.

† "Note on *Bipalium kewense*, and the generic characters of Land-Planarians." *Proceedings of the Zoological Society of London*, 1886, p. 166, Plate XVIII.

